Application Serial No: 09/814,487 Attorney Docket No. 80095
In reply to Advisory Action of 7 June 2005 and telephone conversation
Between Examiner Jagan and Attorney Nasser on 15 June 2005

AMENDMENTS TO THE CLAIMS

1. (currently amended) An instrumented fiber optic tow cable system for measuring a temperature profile of a fluid, which comprises:

a low strain cable having a core, said core having an interior and an exterior;

a jacket concentric with and in contact with the exterior of said core, said jacket having an exterior;

a plurality of armor wires radially spaced around and in contact with the exterior of said ~~core~~ jacket and defining at least one radially located layer circumferentially concentric with said ~~core~~ jacket;

a plurality of optical fibers spaced around the exterior of said ~~core~~ jacket interspersed among said plurality of armor wires in the outermost radially located layer of said at least one radially located layer of said plurality of armor wires to exposes the optical fibers to the temperature of said fluid, wherein each of said plurality of optical fibers ~~are~~ is surrounded by a

plurality of steel armor wires of smaller diameter than that of said plurality of armor wires;

a light source arranged to send light signals to said plurality of optical fibers, which scatter, said light signals according to the temperature profile of said fluid;

receiver means for receiving the scattered light signals from said plurality of optical fibers; and

processing means for analyzing said scattered light signals received by said receiver means to determine a temperature profile of said fluid.

2. (previously presented) The instrumented fiber optic tow cable system of claim 1 wherein said processing means includes a display unit for getting a visual presentation of said temperature profile.

3. (canceled)

4. (previously presented) The instrumented fiber optic tow cable system of claim 1 wherein said plurality of armor wires are steel wires.

5. (previously presented) The instrumented fiber optic tow cable system of claim 1 wherein said plurality of armor wires are KEVLAR™ fibers.

6. (canceled)

7. (canceled)

8. (canceled)

9. (previously presented) The instrumented fiber optic tow cable system of claim 1 wherein Raman scattering effects are used to infer the temperature of the plurality of optical fibers.

10. (currently amended) The instrumented fiber optic tow cable system of claim [[6]] 1 wherein a plurality of steel tubes replace said plurality of armor wires and each of said plurality of steel tubes has a diameter less than or equal to the diameter

of the corresponding replaced armor wire of each of said plurality of armor wires.

11. (canceled).

12. (canceled).

13. (canceled).

14. (currently amended) The instrumented fiber optic tow cable system of claim 1 ~~which includes a~~ wherein the processing means ~~making~~ makes use of Raman scattering.

15. (previously presented) The instrumented fiber optic cable system of claim 14 wherein said processing means also uses Optical Time Domain Reflectometry (OTDR).

16. (currently amended) The instrumented fiber optic tow cable system of claim [[6]] 1 wherein each of said plurality of optical fibers ~~enclosed in said a steel tubes is~~ surrounded by a plurality of steel armor wires of smaller diameter than that of said plurality of armor wires is in turn enclosed in a steel tube to keep said plurality of steel armor wires of smaller diameter together as one unit.

17. (new) The instrumented fiber optic tow cable system of claim 1 wherein each of said plurality of optical fibers surrounded by a plurality of steel armor wires of smaller diameter than that of said plurality of armor wires is in turn enclosed in a KEVLAR™ braided fiber-based sleeve to keep said plurality of steel armor wires of smaller diameter together as one unit.

18. (new) An instrumented fiber optic tow cable system for measuring a temperature profile of a fluid, which comprises:

a low strain cable having a core, said core having an interior and an exterior;

a jacket concentric with and in contact with the exterior of said core, said jacket having an exterior;

a plurality of armor wires radially spaced around and in contact with the exterior of said jacket and defining at least one radially located layer circumferentially concentric with said jacket;

a plurality of optical fibers spaced around the exterior of said jacket interspersed among said plurality of armor

wires in the outermost radially located layer of said at least one radially located layer of said plurality of armor wires to exposes the optical fibers to the temperature of said fluid, wherein each of said plurality of optical fibers is surrounded by a plurality of KEVLAR™armor wires of smaller diameter than that of said plurality of armor wires;

a light source arranged to send light signals to said plurality of optical fibers, which scatter, said light signals according to the temperature profile of said fluid;

receiver means for receiving the scattered light signals from said plurality of optical fibers; and

processing means for analyzing said scattered light signals received by said receiver means to determine a temperature profile of said fluid.

19. (new) The instrumented fiber optic tow cable system of claim 11 wherein said processing means includes a display unit for getting a visual presentation of said temperature profile.

20. (new) The instrumented fiber optic tow cable system of claim 18 wherein said plurality of armor wires are steel wires.

21. (new) The instrumented fiber optic tow cable system of claim 18 wherein said plurality of armor wires are KEVLAR™ fibers.

22. (new) The instrumented fiber optic tow cable system of claim 18 wherein Raman scattering effects are used to infer the temperature of the plurality of optical fibers.

23. (new) The instrumented fiber optic tow cable system of claim 1 wherein the processing means makes use of Raman scattering.

24. (new) The instrumented fiber optic cable system of claim 23 wherein said processing means also uses Optical Time Domain Reflectometry (OTDR).